



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,718	01/07/2002	Patrick Chollet	Q66643	2215

23373 7590 10/06/2006
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

ALEJANDRO MULERO, LUZ L

ART UNIT	PAPER NUMBER
----------	--------------

1763

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/501,718

Applicant(s)

CHOLLET, PATRICK

Examiner

Luz L. Alejandro

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/20/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "substantially" in claim 9, lines 3 and 4, is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claims 2, 4, 6, 10-11 and 13 are not clear since no apparatus structure is being claimed and the language of the claims is directed to method limitations instead of apparatus limitations.

Clarification and/or correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuehnle et al., U.S. Patent 5,679,412 in view of Leprince et al., U.S. Patent 5,063,330 and Sato et al., U.S. Patent 5,961,776 or Watanabe et al., U.S. Patent 6,158,383 or Ishii, U.S. Patent 6,827,972.

Kuehnle et al. shows the invention as claimed including a device for processing the surface of a container 10, in which the processing is accomplished by a low-pressure plasma, by excitation of a reaction fluid with microwave electromagnetic waves, the device for processing comprising: an enclosure in which the container is placed, the container having an elongated neck portion; inside of the enclosure, the microwaves are introduced by a coupling device; a device 82 extending into the enclosure to hold the neck of the container; wherein the enclosure is a cylinder having a central axis such that the coupling device has a wave guide tunnel having a rectangular cross section, which extends towards the main axis of the enclosure and which is provided within a window of a wall of the enclosure; the wave guide tunnel projected on a plane tangent to the enclosure, and is rectangular in shape, the smaller dimension of the rectangle corresponds to its dimension along the direction of the axis of the enclosure (see, for example, figs. 1 and 6-7, and their descriptions).

Kuehnle et al. does not expressly disclose that the enclosure is made of a conductive material. Leprince et al. discloses a microwave plasma apparatus in which the enclosure is made of a conductive material (see, for example, col. 2, lines 66-68). Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Kuehnle et

al. as to comprise an enclosure made of a conductive material, because such material is known to be suitable and used in the art for the enclosure of a microwave plasma apparatus.

Kuehnle et al. and Leprince et al. do not expressly disclose the electric field resulting from the propagation of the microwaves has an axial symmetry with respect to the central axis of the enclosure, the claimed inside diameters of the enclosure and the claimed variations of intensity of the electrical field. However, Sato et al. discloses a microwave apparatus that has an axial symmetry with respect to the central axis of the enclosure (see figs. 3A-3B and their descriptions), as does Watanabe et al. (see fig. 3 and its description) and Ishii (see figs. 3A-3B and their descriptions). In view of these disclosures, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Kuehnle et al. modified by Leprince et al. so as to have an electric field resulting from the propagation of the microwaves to have an axial symmetry with respect to the central axis of the enclosure because such an electric field distribution enables a uniform plasma.

Kuehnle et al., Leprince et al., Sato et al., Watanabe et al. and Ishii do not expressly disclose the claimed inside diameters of the enclosure and the dimensions of the wave guide tunnel, however, a prima facie case of obviousness still exists because it would have been an obvious choice of design to one having ordinary skill in the art at the time the invention was made to select/optimize the inside diameter of the enclosure and the dimensions of the wave guide tunnel, as claimed depending on the object to be processed and/or the coupling mode required, and such limitation would not lend

Art Unit: 1763

patentability to the instant application absent the showing of unexpected results.

Furthermore, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. Also, note that the claimed variations of the intensity of the electrical field will be achieved depending on the dimension of the enclosure. Furthermore, note that the language of claims 2, 4, and 6, is directed to method limitations instead of apparatus limitations since no apparatus structure is being claimed.

With respect to claims 10 and 11, note that Kuehnle et al. discloses that the reaction fluid is introduced into the container and into the enclosure in such a way that the processing is applied to the inner and the outer faces of the container (see, for example, col. 11, lines 38-40 and col. 16, lines 15-16). Furthermore, it should be noted that the language of the claims is directed to method limitations instead of apparatus limitations since no apparatus structure is being claimed.

Regarding claim 12, note that inside the enclosure of the apparatus of Kuehnle et al., a cavity 52 is delimited by a wall made of a material that is transparent to the microwaves, and the container 10 is received inside the cavity (see, for example, fig. 6).

Concerning claim 13, note that a material is deposited by low-pressure plasma in the apparatus of Kuehnle et al.. Furthermore, this limitation is directed to a method limitation instead of an apparatus limitation and since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand,

since a variety of methods can be done with the apparatus. The method limitations are viewed as intended uses which do not further limit, and therefore do not patentably distinguish the claimed invention.

Claims 1-10 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plester, U.S. Patent 5,849,366 in view of Leprince et al., U.S. Patent 5,063,330 and Sato et al., U.S. Patent 5,961,776 or Watanabe et al., U.S. Patent 6,158,383 or Ishii, U.S. Patent 6,827,972.

Plester shows the invention as claimed including a device for processing the surface of a container 2, in which the processing is accomplished by a low-pressure plasma, by excitation of a reaction fluid with microwave electromagnetic waves, the device for processing comprising: an enclosure in which the container is placed, the container having an elongated neck portion; inside of the enclosure, the microwaves are introduced by a coupling device 7; a device extending into the enclosure to hold the neck of the container; wherein the enclosure is a cylinder and its central axis is a main axis of the container such that the coupling device has a wave guide tunnel having a rectangular cross section, which extends towards the main axis of the enclosure and which is provided within a window of a wall of the enclosure; the wave guide tunnel projected on a plane tangent to the enclosure, and is rectangular in shape, the smaller dimension of the rectangle corresponds to its dimension along the direction of the axis of the enclosure (see, for example, figs. 1, 2A and 2C, and their descriptions).

Plester does not expressly disclose that the enclosure is made of a conductive material. Leprince et al. discloses a microwave plasma apparatus in which the enclosure is made of a conductive material (see, for example, col. 2, lines 66-68). Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Plester as to comprise an enclosure made of a conductive material, because such material is known to be suitable and used in the art for the enclosure of a microwave plasma apparatus.

Plester and Leprince et al. do not expressly disclose the electric field resulting from the propagation of the microwaves has an axial symmetry with respect to the central axis of the enclosure, the claimed inside diameters of the enclosure and the claimed variations of intensity of the electrical field. However, Sato et al. discloses a microwave apparatus that has an axial symmetry with respect to the central axis of the enclosure (see figs. 3A-3B and their descriptions), as does Watanabe et al. (see fig. 3 and its description) and Ishii (see figs. 3A-3B and their descriptions). In view of these disclosures, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Plester modified by Leprince et al. so as to have an electric field resulting from the propagation of the microwaves to have an axial symmetry with respect to the central axis of the enclosure because such an electric field distribution enables a uniform plasma.

Plester, Leprince et al., Sato et al., Watanabe et al. and Ishii do not expressly disclose the claimed inside diameters of the enclosure and the dimensions of the wave

Art Unit: 1763

guide tunnel, however, a prima facie case of obviousness still exists because it would have been an obvious choice of design to one having ordinary skill in the art at the time the invention was made to select/optimize the inside diameter of the enclosure and the dimensions of the wave guide tunnel, as claimed depending on the object to be processed and/or the coupling mode required, and such limitation would not lend patentability to the instant application absent the showing of unexpected results.

Furthermore, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. Also, note that the claimed variations of the intensity of the electrical field will be achieved depending on the dimension of the enclosure. Furthermore, note that the language of claims 2, 4, and 6, is directed to method limitations instead of apparatus limitations since no apparatus structure is being claimed.

With respect to claim 10, note that Plester discloses that the reaction fluid is introduced into the container in such a way that the processing is applied to the inner face of the container. Furthermore, it should be noted that the language of the claim is directed to a method limitation instead of an apparatus limitation since no apparatus structure is being claimed.

Regarding claim 12, note that inside the enclosure of the apparatus of Plester, a cavity is delimited by a wall made of a material that is transparent to the microwaves, and the container is received inside the cavity (see, for example, fig. 2A or fig. 2C).

Art Unit: 1763

Concerning claim 13, note that a material is deposited by low-pressure plasma in the apparatus of Plester. Furthermore, this limitation is directed to a method limitation instead of an apparatus limitation and since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand, since a variety of methods can be done with the apparatus. The method limitations are viewed as intended uses which do not further limit, and therefore do not patentably distinguish the claimed invention.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Plester, U.S. Patent 5,849,366 in view of Leprince et al., U.S. Patent 5,063,330 and Sato et al., U.S. Patent 5,961,776 or Watanabe et al., U.S. Patent 6,158,383 or Ishii, U.S. Patent 6,827,972, as applied to claims 1-10 and 12-13 above, and further in view of Kuehnle et al., U.S. Patent 5,679,412.

Plester, Leprince et al., Sato et al., Watanabe et al. and Ishii are applied as above but do not expressly disclose that the reaction fluid is introduced into the enclosure in such a way that the processing is applied to the outer face of the container. Kuehnle et al. discloses a microwave plasma apparatus, for plasma processing a container, comprising means for introducing the reaction fluid into the container and into the enclosure in such a way that the processing is applied to the inner and the outer faces of the container (see, for example, col. 11, lines 38-40 and col. 16, lines 15-16). Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Plester

Art Unit: 1763

modified by Leprince et al. and Sato et al. or Watanabe et al. or Ishii, as to further comprise the means of Kuehnle et al. to introduced the reaction fluid into the enclosure outside the container if the method to be performed in the apparatus requires to applied the processing to the outer face of the container. Furthermore, it should be noted that the language of the claim is directed to a method limitation instead of an apparatus limitation since no apparatus structure is being claimed.

Claims 1-10 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Laurent, WO 99/17334 in view of Leprince et al., U.S. Patent 5,063,330 and Sato et al., U.S. Patent 5,961,776 or Watanabe et al., U.S. Patent 6,158,383 or Ishii, U.S. Patent 6,827,972.

Laurent shows the invention as claimed including a device for processing the surface of a container 1, in which the processing is accomplished by a low-pressure plasma, by excitation of a reaction fluid with microwave electromagnetic waves, the device for processing comprising: an enclosure in which the container is placed, the container having an elongated neck portion; inside of the enclosure, the microwaves are introduced by a coupling device 4; a device extending into the enclosure to hold the neck of the container; wherein the enclosure is a cylinder having a central axis, the coupling device has a wave guide tunnel having a rectangular cross section and which is provided within a window of a wall of the enclosure (see, for example, figs. 1-4, and their descriptions).

Laurent does not expressly disclose that the wave guide tunnel has a rectangular cross section, the wave guide tunnel projected on a plane tangent to the enclosure, and the smaller dimension of the rectangle corresponds to its dimension along the direction of the axis of the enclosure. However, the configuration of the claimed wave guide is a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed wave guide is significant.

Laurent does not expressly disclose that the enclosure is made of a conductive material. Leprince et al. discloses a microwave plasma apparatus in which the enclosure is made of a conductive material (see, for example, col. 2, lines 66-68). Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Laurent as to comprise an enclosure made of a conductive material, because such material is known to be suitable and used in the art for the enclosure of a microwave plasma apparatus.

Laurent and Leprince et al. do not expressly disclose the electric field resulting from the propagation of the microwaves has an axial symmetry with respect to the central axis of the enclosure, the claimed inside diameters of the enclosure and the claimed variations of intensity of the electrical field. However, Sato et al. discloses a microwave apparatus that has an axial symmetry with respect to the central axis of the enclosure (see figs. 3A-3B and their descriptions), as does Watanabe et al. (see fig. 3 and its description) and Ishii (see figs. 3A-3B and their descriptions). In view of these

Art Unit: 1763

disclosures, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Laurent modified by Leprince et al. so as to have an electric field resulting from the propagation of the microwaves to have an axial symmetry with respect to the central axis of the enclosure because such an electric field distribution enables a uniform plasma.

Laurent, Leprince et al., Sato et al., Watanabe et al. and Ishii do not expressly disclose the claimed inside diameters of the enclosure and the dimensions of the wave guide tunnel, however, a prima facie case of obviousness still exists because it would have been an obvious choice of design to one having ordinary skill in the art at the time the invention was made to select/optimize the inside diameter of the enclosure and the dimensions of the wave guide tunnel, as claimed depending on the object to be processed and/or the coupling mode required, and such limitation would not lend patentability to the instant application absent the showing of unexpected results. Furthermore, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. Also, note that the claimed variations of the intensity of the electrical field will be achieved depending on the dimension of the enclosure. Furthermore, note that the language of claims 2, 4, and 6, is directed to method limitations instead of apparatus limitations since no apparatus structure is being claimed.

Art Unit: 1763

With respect to claim 10, note that Laurent discloses that the reaction fluid is introduced into the container in such a way that the processing is applied to the inner face of the container. Furthermore, it should be noted that the language of the claims is directed to method limitations instead of apparatus limitations since no apparatus structure is being claimed.

Regarding claim 12, note that inside the enclosure of the apparatus of Laurent, a cavity is delimited by a wall 10 made of a material that is transparent to the microwaves, and the container 1 is received inside the cavity.

Concerning claim 13, note that a material is deposited by low-pressure plasma in the apparatus of Laurent. Furthermore, this limitation is directed to a method limitation instead of an apparatus limitation and since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand, since a variety of methods can be done with the apparatus. The method limitations are viewed as intended uses which do not further limit, and therefore do not patentably distinguish the claimed invention.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laurent, WO 99/17334 in view of Leprince et al., U.S. Patent 5,063,330 and Sato et al., U.S. Patent 5,961,776 or Watanabe et al., U.S. Patent 6,158,383 or Ishii, U.S. Patent 6,827,972, as applied to claims 1-10 and 12-13 above, and further in view of Kuehnle et al., U.S. Patent 5,679,412.

Art Unit: 1763

Laurent, Leprince et al., Sato et al., Watanabe et al. and Ishii are applied as above but do not expressly disclose that the reaction fluid is introduced into the enclosure in such a way that the processing is applied to the outer face of the container. Kuehnle et al. discloses a microwave plasma apparatus, for plasma processing a container, comprising means for introducing the reaction fluid into the container and into the enclosure in such a way that the processing is applied to the inner and the outer faces of the container (see, for example, col. 11, lines 38-40 and col. 16, lines 15-16). Therefore, in view of this disclosure, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Laurent modified by Leprince et al. and Sato et al. or Watanabe et al. or Ishii, as to further comprise the means of Kuehnle et al. to introduced the reaction fluid into the enclosure outside the container if the method to be performed in the apparatus requires to applied the processing to the outer face of the container. Furthermore, it should be noted that the language of the claim is directed to a method limitation instead of an apparatus limitation since no apparatus structure is being claimed.

Response to Arguments


Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 571-272-1430. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Luz L. Alejandro
Primary Examiner
Art Unit 1763

September 27, 2006